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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,669	10/29/2003	Hiroyuki Yamakita	61352-053	4068

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600 13th Street, N.W.  
Washington, DC 20005-3096

EXAMINER
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THOMAS, BRANDI N

ART UNIT	PAPER NUMBER
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2873

MAIL DATE	DELIVERY MODE
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08/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/695,669	YAMAKITA ET AL.	
	Examiner	Art Unit	
	Brandi N. Thomas	2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 42-45, 48-50, 52-55 and 57 is/are pending in the application.
- 4a) Of the above claim(s) 1-41, 46, 47, 51, 56 and 58 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 42-45, 48-50, 52-55 and 57 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>Detailed Action</u> .                  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 42-45, 48-50, 52-55, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigehiro et al. in view of Takehiro (10-154603).

Regarding claim 42, Shigehiro et al. discloses, in figures 12 and 13, a display device (120) comprising: a pair of substrates (10 and 11) disposed opposite to each other, at least one of which is transparent (col. 5, lines 25-28); a plurality of particles (13 and 14) having an electrostatic property contained in a gaseous phase provided between the pair of substrates (10 and 11) (col. 4, lines 8-16 and col. 13, lines 46-50); first and second electrodes (403 and 404) provided for each of pixels arranged in a matrix for driving the particles (13 and 14) (col. 7, lines 32-40); and a voltage applying portion (402 and 405) for applying voltage to the first and second electrodes (403 and 404) in accordance with an image signal (col. 7, lines 41-47), and when voltage is applied to the first and second electrodes (403 and 404) by the voltage applying portion (402 and 405), the particles (10 and 11) are caused to travel between the first and second electrodes (403 and 404) in accordance with the voltage applied so as to display an image to the image signal (col. 7, lines 41-47) but does not specifically disclose wherein the particles each comprise a parent particle as a core, and plural child particles fixed to the parent particle in a manner to cover a substantially entire surface of the parent particle. Takehiro discloses, in figure

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3, wherein the particles (14) each comprise a parent particle (13) as a core, and plural child particles (11) fixed to the parent particle (13) in a manner to cover a substantially entire surface of the parent particle (13) (section 0016). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the device of Shigehiro et al. with the parent particles of Takehiro for the purpose of reducing resistance (section 0016).

Regarding claim 43, Shigehiro et al. discloses, in figures 12 and 13, a display device (120), wherein the plurality of particles (10 and 11) comprise two kinds of particles (black and white) which are electrostatically charged to have different polarities (col. 5, lines 28-30) but does not specifically disclose at least one of the two kinds of particles comprising a parent particle as a core, and plural child particles fixed to the parent particle in a manner to cover a substantially entire surface of the parent particle. Takehiro discloses, in figure 3, wherein the particles (14) each comprise a parent particle (13) as a core, and plural child particles (11) fixed to the parent particle (13) in a manner to cover a substantially entire surface of the parent particle (13) (section 0016). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the device of Shigehiro et al. with the parent particles of Takehiro for the purpose of reducing resistance (section 0016).

Regarding claims 44 and 57, Shigehiro et al. discloses, in figures 12 and 13, a display device (120) comprising: a pair of substrates (10 and 11) disposed opposite to each other, at least one of which is transparent (col. 5, lines 25-28); a plurality of particles (13 and 14) having an electrostatic property contained in a gaseous phase provided between the pair of substrates (10 and 11) (col. 4, lines 8-16 and col. 13, lines 46-50); first and second electrodes (403 and 404) provided for each of pixels arranged in a matrix for driving the particles (13 and 14) (col. 7, lines

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32-40); and a voltage applying portion (402 and 405) for applying voltage to the first and second electrodes (403 and 404) in accordance with an image signal (col. 7, lines 41-47), and when voltage is applied to the first and second electrodes (403 and 404) by the voltage applying portion (402 and 405), the particles (10 and 11) are caused to travel between the first and second electrodes (403 and 404) in accordance with the voltage applied so as to display an image to the image signal (col. 7, lines 41-47) but does not specifically disclose wherein the particles each comprise a parent particle as a coating an entire surface of the core, a first coating layer parent particle and comprising a material having a higher softening point than that of the parent particle, a second coating layer coating an entire surface of the first coating layer and comprising the same material as that of the parent particle or a material having a lower softening point than that of the parent particle, and plural child particles fixed to the second coating layer in a manner to cover a substantially entire surface of the second coating layer. Takehiro discloses, in figure 3, wherein the particles (14) each comprise a parent particle (13) as a core, and plural child particles (11) fixed to the parent particle (13) in a manner to cover a substantially entire surface of the parent particle (13) (section 0016), a first coating layer parent particle (13) and comprising a material having a higher softening point than that of the parent particle (section 0016), a second coating layer coating an entire surface of the first coating layer and comprising the same material as that of the parent particle or a material having a lower softening point than that of the parent particle (section 0016), and plural child particles (11) fixed to the second coating layer in a manner to cover a substantially entire surface of the second coating layer (section 0016). Therefore it would have been obvious to one having ordinary skill in the art at the time the

invention was made to combine the device of Shigehiro et al. with the parent particles of Takehiro for the purpose of reducing resistance (section 0016).

Regarding claim 45, Shigehiro et al. discloses, in figures 12 and 13, a display device (120) but does not specifically disclose wherein the parent particle has a smaller specific gravity and a lower softening point than the child particles. Takehiro discloses, in figure 3, wherein the particles (14) each comprise a parent particle (13) as a core, and plural child particles (11) fixed to the parent particle (13) in a manner to cover a substantially entire surface of the parent particle (13) (section 0016). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the device of Shigehiro et al. with the parent particles of Takehiro for the purpose of reducing resistance (section 0016).

Regarding claim 48, Shigehiro et al. discloses, in figures 12 and 13, a display device (120) but does not specifically disclose wherein either or both of the parent particles and the child particles are spherical. Takehiro discloses, in figure 3, wherein the particles (14) each comprise a parent particle (13) as a core, and plural child particles (11) fixed to the parent particle (13) in a manner to cover a substantially entire surface of the parent particle (13) (section 0016). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the device of Shigehiro et al. with the parent particles of Takehiro for the purpose of reducing resistance (section 0016).

Regarding claim 49, Shigehiro et al. discloses, in figures 12 and 13, a display device (120) but does not specifically disclose wherein the child particles each comprise fine particles of silica surface-treated to have an electrostatic property. Takehiro discloses, in figure 3, wherein the child particles each comprise fine particles of silica surface-treated to have an electrostatic

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property (sections 0016 and 0017). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the device of Shigehiro et al. with the parent particles of Takehiro. for the purpose of reducing resistance (sections 0016 and 0017).

Regarding claim 50, Shigehiro et al. discloses, in figures 12 and 13, a display device (120), wherein the child particles are colored particles (col. 5, lines 28-30).

Regarding claim 52, Shigehiro et al. and Takehiro disclose a display device (120) but does not specifically disclose wherein the child particles are we-milled, while Takehiro does not disclose the particles being wet-milled by a mill using a milling medium, this limitation is considered to be a product by process see MPEP 2113) and consequently does not provide any structural limitation beyond the particles disclosed by Shigehiro et al. and Takehiro.

Regarding claim 53, Shigehiro et al. discloses, in figures 12 and 13, a display device (120), wherein the childe particles are titanium oxide particles having an average particles diameter not less than 200 nm and not more than 400 nm (col. 6, lines 3-9).

Regarding claim 54, Shigehiro et al. discloses, in figure 6b, a display device (120), wherein one of the two kinds of particles comprises black particles and negatively charged child particles are adhering to the black particles (figure 6b).

Regarding claim 55, Shigehiro et al. discloses, in figures 12 and 13, a display device (120), wherein the childe particles are silica particles having an average particles diameter not less than 10 nm and not more than 20 nm (col. 6, lines 31-37).

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 42-45, 48-50, 52-55, and 57 have been considered but are moot in view of the new ground(s) of rejection.

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*Conclusion*


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandi N. Thomas whose telephone number is 571-272-2341.

The examiner can normally be reached on Monday - Thursday from 6-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on 571-272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Brandi N Thomas  
Examiner  
Art Unit 2873

  
BNT  
July 19, 2007

  
RICKY MACK  
SUPERVISORY PATENT EXAMINER